

**Amendments to the Claims:**

The listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claims 1.-15. (Cancelled)

Claim 16. (Previously Presented) A periodic electromagnetic structure comprising an array of conducting LC elements in combination with a frequency-dependent dielectric whose permittivity and/or permeability varies according to the frequency of radiation incident thereon such that the resonant frequency of the LC elements follows the frequency of the incident radiation.

Claim 17. (Previously Presented) The structure of Claim 16, wherein the frequency-dependent dielectric has a response to incident radiation such that the product of the permittivity and permeability of the dielectric varies in proportion to the reciprocal of the square of the frequency of the incident radiation.

Claim 18. (Previously Presented) The structure of Claim 16, wherein the frequency-dependent dielectric has a response to incident radiation such that the permittivity of the dielectric generally varies in proportion to the reciprocal

of the square of the frequency of the incident radiation and the permeability of the dielectric is substantially constant.

Claim ~~[[17.]]~~ 19. (Currently Amended) The structure of Claim 16, wherein the frequency-dependent dielectric has a response to incident radiation such that the permeability of the dielectric generally varies in proportion to the reciprocal of the square of the frequency of the incident radiation and the permittivity of the dielectric is substantially constant.

Claim ~~[[18.]]~~ 20. (Currently Amended) The structure of Claim ~~[[17,]]~~ 19, wherein the frequency-dependent dielectric is ferrite material type 4EI.

Claim ~~[[19.]]~~ 21. (Currently Amended) The structure of Claim 16, wherein the LC elements are protrusions from a flat conducting plate.

Claim ~~[[20.]]~~ 22. (Currently Amended) The structure of Claim ~~[[19,]]~~ 21, wherein the frequency-dependent dielectric abuts the conducting plate and the protrusions extend at least partially into the dielectric.

Claim ~~[[21.]]~~ 23. (Currently Amended) The structure of Claim ~~[[20,]]~~ 22, wherein the protrusions are generally thumb tack shaped.

Claim ~~[[22.]]~~ 24. (Currently Amended) The structure of Claim ~~[[17,]]~~  
19, wherein the structure forms an ultra compact photonic bandgap device.

Claim ~~[[23.]]~~ 25. (Currently Amended) The structure of Claim ~~[[17,]]~~  
19, wherein the structure forms a split ring resonator.

Claim ~~[[24.]]~~ 26. (Currently Amended) The structure of Claim  
~~[[21,]]~~ 23, wherein the LC elements are disposed across the surface of the  
frequency-dependent dielectric.

Claim ~~[[25.]]~~ 27. (Currently Amended) The structure of Claim ~~[[17,]]~~  
19, wherein the structure comprises chiral conductors).

Claim ~~[[26.]]~~ 28. (Currently Amended) The structure of Claim ~~[[25,]]~~  
27, wherein the chiral conductors are helical.

Claim ~~[[27.]]~~ 29. (Currently Amended) The structure of Claim ~~[[25,]]~~  
27, wherein the chiral conductors are set within the frequency dependent  
dielectric.

Claim ~~[[28.]]~~ 30. (Currently Amended) The structure of Claim 16, wherein the structure forms a high-impedance surface.

Claim ~~[[29.]]~~ 31. (Currently Amended) The structure of Claim ~~[[28,]]~~ 30, wherein the surface impedance of the periodic electromagnetic structure is substantially  $377 \Omega$ .

Claim ~~[[30.]]~~ 32. (Currently Amended) An antenna comprising a periodic electromagnetic structure according to Claim 16.

Claim ~~[[31.]]~~ 33. (Currently Amended) A mobile phone handset comprising an antenna according to Claim ~~[[30.]]~~ 32.

Claim ~~[[32.]]~~ 34. (Currently Amended) A radar absorbent material comprising a periodic electromagnetic structure according to Claim 16, wherein the impedance of the structure is substantially  $377 \Omega$ , thereby to match the impedance of free space.